Class exercise

EE473

Question1

Debbie is about to choose a career path. She has narrowed her options to two alternatives. She can become either a marine biologist or a concert pianist. Debbie lives two periods. In the first, she gets an education. In the second, she works in the labor market. If Debbie becomes a marine biologist, she will spend $15,000 on education in the first period and earn $472,000 in the second period. If she becomes a concert pianist, she will spend $40,000 on education in the first period and earn $500,000 in the second period

a. Suppose Debbie can lend and borrow money at a 5 percent rate of interest between the two periods. Which career will she pursue? What is she can lend and borrow money at a 15 percent rate of interest? Will she choose a different option? Why?

b. Suppose musical conservatories raise their tuition so that it now costs Debbie $60,000 to become a concert pianist. What career will Debbie pursue if the interest rate is 5 percent?

Question 2

Peter lives for three periods. He is currently considering three alternative education-work options. He can start working immediately, earning $100,000 in period 1, $110,000 in period 2 (as his work experience leads to higher productivity), and $90,000 in period 3 (as his skills become obsolete and physical abilities deteriorate).

Alternatively, he can spend $50,000 to attend college in period 1 and then earn $180,000 in periods 2 and 3.

Finally, he can receive a doctorate degree in period 2 after completing his college education in period 1. This last option will cost him nothing when he is attending graduate school in the second period as his expenses on tuition and books will be covered by a research assistantship. After receiving his doctorate, he will become a professor in a business school and earn $400,000 in period 3.

Peter's discount rate is 20 percent per period.

What education path maximizes Peter's net present value of his lifetime earnings?

Question 3

Jane has three years of college, pam has two, and Mary has one. Jane earns $21 per hour, Pam earns $19, and Mary earns $16. The difference in educational attainment is due completely to different discount rates.

How much can the available information reveal about each woman's discount rate?

Question 4

Suppose the skills acquired in school depreciate over time, perhaps because technological change makes the things learned in school obsolete.

What happens to a worker's optimal amount of schooling if the rate of depreciation increases?

Question 5

a. Describe the basic self-selection issue involved whenever discussing the returns to education.

b. Does the fact that some high school or college dropouts go on to earn vast amounts of money (e.g. Bill Gates dropped out of Harvard without ever graduating) contradict the self-selection theory?

c. Most government-provided job training programs are optional to the worker. Describe how the self-selection issue might be used to call into question empirical results suggesting there are large economic benefits to be gained by requiring all workers to receive government-provided job training.